GEORGIA INSTITUTE OF TECHNOLOGY — OFFICE OF CONTRACT ADMINISTRATION

PROJECT ADMINISTRATION DATA SHEET

[x] ORIGINAL [ ] REVISION NO. _____

Project No. E-26-622 DATE 3/31/82

Project Director: G. G. Eichholz School/Lab Nuclear Engineering

Sponsor: AMAF Industries, Inc.

C/O

Type Agreement: Contract No. AMAF-R12-001 (DOE Prime DE-AC01-82NE-31501)

Award Period: From 12/1/81 To 12/30/82 (Performance) Flexible (Reports)

Sponsor Amount: $29,000 (partial funding est. through 3/31/82)* Contracted through:

Cost Sharing: None GTRI/~~GTX~~

Title: An Analysis of the Fixation and Remobilization of Radioactive Waste Materials in Near-Surface Repositories

ADMINISTRATIVE DATA

OCA Contact William F. Brown x4820

1) Sponsor Technical Contact:

2) Sponsor Admin/Contractual Matters:

Mr. Alfred G. Meyer, Manager
Contracts & Procurement
103 Sterrett Bldg.
P. O. Box 1100
Columbia, MD 21044
(301) 995-1919

Defense Priority Rating: none

Security Classification: none

RESTRICTIONS

See Attached _____ Supplemental Information Sheet for Additional Requirements.

Travel: Foreign travel must have prior approval — Contact OCA in each case. Domestic travel requires sponsor approval where total will exceed greater of $500 or 125% of approved proposal budget category.

Equipment: Title vests with _____

COMMENTS:

*Total negotiated contract value $87,405.

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FCRM OCA 4:781

GEORGIA INSTITUTE OF TECHNOLOGY OFFICE OF CONTRACT ADMINISTRATION

SPONSORED PROJECT TERMINATION/CLOSEOUT SHEET

Date 12/18/86

Project No. E-26-622 School/Lab NE/Hea.phys.

Includes Subproject No.(s) N/A

Project Director(s) G. G. Eichholz GTRC / GIT

Sponsor AMAF Industries, Inc.

Title An Analysis of the Fixation and Remobilization of Radioactive Waste Materials in Near-Surface Repositories

Effective Completion Date: * (Performance) (Reports)

Grant/Contract Closeout Actions Remaining:

No further reporting requirements.

*Final payment received by GTRC 12/28/83.

- [X] None
- [ ] Final Invoice or Final Fiscal Report
- [ ] Closing Documents
- [ ] Final Report of Inventions
- [ ] Govt. Property Inventory & Related Certificate
- [ ] Classified Material Certificate
- [ ] Other

Continues Project No. Continued by Project No.

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FORM OCA 69.285

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E-26-622

Georgia Institute of Technology
A UNIT OF THE UNIVERSITY SYSTEM OF GEORGIA
SCHOOL OF NUCLEAR ENGINEERING AND HEALTH PHYSICS
ATLANTA, GEORGIA 30332
(404) 894-3720

May 5, 1982

Dr. Robert M. Dixon
Director, IRDEN
Suite 500
44 Broad Street, NW
Atlanta, Georgia 30303

Third Monthly Progress Letter - April 1982
Contract No. AMAF-R12-001; Our Project E-26-622

Dear Dr. Dixon:

Work proceeded smoothly during the month, even though funding authorization ended March 29, 1982, while the contract continues, and it is hoped this anomalous situation will be rectified shortly.

During the month we participated in the Program Review of IRDEN by DOE and EG&G staff by a presentation at IRDEN and a laboratory inspection. Miss Pamela Henderson, a graduate research assistant in health physics has joined the project group for the spring quarter. There have been no changes in contract management.

Investigation of alternative designs for shallow burial facilities has continued with emphasis on drained trenches as against impermeable ones. The intent is to minimize contact of water with the waste and provision of a controlled pathway for subsequent movement of any water that does enter the waste storage area.

Major emphasis during the month was placed on the percolation and water retention properties of the soil materials used. By designing a different contact assembly, a series of electric conductivity measurements were obtained for sand columns with various uniform water concentrations. Sand samples have been sized, and tests for conductivity at low moisture contents and their reproducibility are under way.

In a separate series of measurements permeability and flow rates for "Savannah River Soil" samples in columns for different size ranges have been obtained. This is a very clayey soil with low permeability in the natural composition. Tests are under way for this and some local soils to investigate Cs-137 movement in 20-24 mesh columns under unsaturated conditions.

Because of erratic results on cesium uptake on kaolin suspensions in the presence of phosphate injections, systematic tests were conducted to pinpoint the causes of discrepencies. Tests were done to verify that the tracer addition itself did

not affect pH and that cesium uptake reached equilibrium. The amount of kaolin used in previous tests was found to be too low for statistically significant partition to occur, and this is being rectified in current studies. Work is also under way on cesium desorption after introduction of phosphate.

Yours truly,

Geoffrey G. Eichholz
Regents' Professor

GGE/lm
cc: T. F. Craft
O. Rodgers (OCA) (2)
W. F. Brown (OCA) for information
L.E. Weaver, Director

F26-622

Georgia Institute of Technology
A UNIT OF THE UNIVERSITY SYSTEM OF GEORGIA
SCHOOL OF NUCLEAR ENGINEERING AND HEALTH PHYSICS
ATLANTA, GEORGIA 30332
(404) 894-3720

June 4, 1982

Dr. Robert M. Dixon
Director, IRDEN
AMAF Industries Inc.
103 Sterrett Bldg.
Columbia, MD 21044

Fourth Monthly Progress Report - May 1982
Contract No. AMAF-R12-001; Our Project #26-622

Dear Dr. Dixon:

Work on the contract continued during the month, though still without any resumption in DOE funding, in the hope that this issue will be resolved favorably shortly.

Investigation of alternative designs for shallow burial facilities has continued. A literature search on controlled-drainage approaches to landfill operations and toxic waste disposal has been done and some preliminary conceptual designs have been devised to study the possibility of long-term uninterrupted controlled site drainage.

Work continued on studies on the percolation and water retention properties of soil materials. Resistivity measurements on sand samples of known water content establish a representative S-shaped curve. A scanning system was set up to measure and record tracer concentrations in vertical columns using a collimated scintillation detector and a strip chart recorder. Tests are under way to determine the migration of Cs-137 in sand columns with various moisture contents and to follow any change in resistivity in columns over extended periods.

Tests have continued on tracer movement in columns containing "Savannah River Soil". Earlier tests showed extremely strong adsorption near the top of the column. Several tests were conducted on the remobilization effect of complexants. In one, Cs-137 tracer was added to a kaolin suspension and both adsorption and subsequent desorption were followed over a period of 8 days in the presence and absence of sodium phosphate in equilibrated water and at a higher pH. Relatively little desorption occurred except at high pH. Current tests, employing a different procedure are under way at present.

We would appreciate hearing from you at an early date regarding contractual arrangements to continue the present work and regarding the potential recruitment of minority personnel to participate in it.

Yours sincerely,

Geoffrey Eichholz
Project Coordinator

cc: T.F. Craft
O. Rodgers (OCA) (2)
W.F. Brown (OCA), for information
L.E. Weaver